TEMPORARY HULL ACCESSES

1. SCOPE

1.1 Intent. This standard specification describes the requirements for the Contractor to install and close temporary accesses onboard Coast Guard vessels.

1.2 Appendices.

None.

2. REFERENCES

COAST GUARD DRAWINGS

None.

COAST GUARD PUBLICATIONS

Surface Forces Logistics Center Standard Specification 0740 (SFLC Std Spec 0740), 2014 Welding and Allied Processes

OTHER REFERENCES

Code of Federal Regulations (CFR) Title 29, Part 1915, Aug 2013, Occupational Safety and Health Standards for Shipyard Employment

NAVSEA S0600-AA-PRO-160/CH16, Nov 2011, Underwater Ship Husbandry Manual, Chapter 16 Cofferdams

MIL-C-20079, July 1987, Cloth, Glass; Tape, Textile Glass; and Thread, Glass and Wire-Reinforced Glass

3. REQUIREMENTS

3.1 Prior approval. Holes or openings, except those shown or indicated by drawings or specifications must not be cut in any watertight bulkhead, deck, or shell plating except as approved by the KO. No cuts shall be made in sheer, stringer or bilge strakes, or in the flat keel unless approved by the KO, on a case-by-case basis.

3.2 Drawing submission. A minimum of five working days before creating a temporary structural access opening, the Contractor shall submit one legible drawing of the proposed access to the KO for authorization. The drawing shall include the following, as a minimum:

- A description of the temporary access, including interferences, and plans for the removal and reinstallation of the interferences.
- A plan and elevation view specifying the access opening dimensions; location by deck, frame, and distance from the centerline or deck edge; in addition to showing the location of adjacent penetrations, bulkheads, framing, and welds within 12 inches of the proposed cut.
- Thickness and material of plating and structural members to be cut.
- Temporary structural reinforcement required to prevent distortion of ship's structure.

- Welding details and procedures for removal and reinstallation of access closure plates (including weld sequence, design and material of closure plate(s), and indication of any permanent or temporary weld backing straps, or ceramic backing materials).
- Indication of any cutback of existing welds forming the boundary of the access cuts and the welding sequence for (re)installation of the closure plate.
- Nondestructive inspections and Structural Boundary tests for completed installations.

NOTE

Contractor submissions should address the form, fit, size, and dimensions of accesses, in addition to structural reinforcements for multi-frame accesses.

3.3 Access cut boundaries. The Contractor shall ensure that access cuts comply with the requirements and restrictions detailed in the following and in SFLC Std Spec 0740, and referenced codes.

3.3.1 Location of boundaries. Boundaries of access cuts and closure plates shall, in general, be located between principal ship framing, bulkheads, and other structural members and shall be at least three inches from any of these members or from the toes of other welds. A reduction in this three inch minimum may be approved by the KO on a case by case basis provided sufficient clearance is maintained for welding and inspection requirements. The boundaries of access cuts and closure plates should land on existing butts or seams, wherever practicable. The boundaries of prior access cuts should be utilized wherever possible. Boundaries may extend across one or more frames as required for the size of the opening.

3.3.2 Access hole dimensions and arrangements. Holes or access cuts shall be the minimum size necessary and shall be in accordance with the following:

- Rectangular access cuts and closure plates welded into primary hull structure shall be at least 12 inches wide in the lesser dimension.
- For circular access cuts, the minimum diameter shall be 4T, where T = thickness of the involved structural member, but not less than three inches.
- Circular closure plates for access cuts less than two feet in diameter shall be dished 1/16 to 1/8 inch to allow for shrinkage when welded.
- Corners of rectangular access cuts and closure plates shall have a minimum radius of 6 inches except when a boundary lands on an existing hull longitudinal seam or transverse butt weld.
- Corners at an existing seam or butt shall intersect at a 90 degree angle.
- Cuts that are to cross existing butts or seams shall do so at an angle of 90 degrees plus or minus 15 degrees.
- In primary hull structure, existing welds forming the boundary of a cut shall be cut back 3 inches beyond the toe of the access cut, except that the cut back shall not intersect or cross an existing weld, frame, or structural member. In which case, the cut back may be reduced to a minimum of two inches in length.
- Existing welds crossed by the cut shall not be cut back.

3.3.3 Primary hull structure. Primary Hull Structure includes the shell, main strength decks, principal longitudinal bulkheads, vertical keel, deep web girders and stiffeners designed to withstand the ship bending stress.

3.3.4 Mechanically fastened joints. Welding closer than six inches to a mechanically fastened joint should be avoided. When access cuts cross or come within six inches of a mechanically fastened joint, the fasteners shall be checked for tightness and if necessary, loose fasteners shall be seal welded or removed,

and replaced for a distance of 6 inches beyond the edge of the cut. When a cut crosses a mechanically fastened seam the cut plates shall be repaired using single V welds backed with glass tape (MIL-C-20079) to prevent fusion between the mechanically fastened plates.

3.4 Ship integrity maintenance. The Contractor shall maintain safety and ship integrity by installing temporary guarding and coaming, in addition to weathertight and watertight closures. Remove these temporary fabrications after closing the hull access, and grind surfaces flush in way of removals. For shell plating cuts made at or below the waterline where temporary closures are impractical, the Contractor shall secure each vulnerable compartment and subdivision to minimize potential damage to the extent permitted by the scope and urgency of the work.

3.4.1 Guarding. Install temporary guards in accordance with 29 CFR 1915.73.

3.4.2 Coaming. Ensure that in areas where flammable liquids may be stored, a 4 inch high metal coaming shall be installed on the surface of the deck with tack welds and fully sealed with caulking compound. The coaming shall encircle the access cut in the deck.

3.4.3 Weathertight and contamination closures. Fabricate temporary closures, using fire retardant material, before cutting access openings and install closures whenever access is not in use. Closures shall be:

- Constructed to protect the access from inclement weather and entry of contaminants (shall include a coaming or dam on the deck to redirect rain runoff away from the opening).
- Fitted with fasteners that permit rapid installation and removal.
- Able to support a minimum of 150 pounds per square foot for horizontal deck closures.
- Where the access opening is in way of a removed hatch, scuttle or door, the closure shall be configured to allow normal passage of ship's personnel and equipment.

3.4.4 Watertight closures. Ensure that access openings created four feet or less above the maximum anticipated waterline shall include temporary watertight closures when the vessel is waterborne.

NOTE

NAVSEA S0600-AA-PRO-160/CH16 provides requirements for design, fabrication, and installation of temporary watertight closures.

3.5 Closure plate restoration. The Contractor shall remove the temporary closures, when no longer required, and install permanent closure plates in accordance with applicable drawings. Access closure weld joints shall be full penetration. Welds in primary hull structure or in watertight boundaries, shall be full penetration welds without permanent backing straps.

3.6 Testing and inspection. Nondestructive examination (NDE) and compartment/boundary testing shall be in accordance with SFLC Std Spec 0740, Appendix C.

4. NOTES

This section is not applicable to this standard specification.